A review of pneumatic actuators (modeling and control)

ABSTRACT

The pneumatic actuator represents the main force control operator in many industrial applications, where its static and dynamic characteristics play an important role in the overall behavior of the control system. Therefore improving the dynamic behavior of the pneumatic actuator is of prime interest to control system designers. This paper is a review of literature that related of the pneumatic actuator systems. In particular, the innovations in different control strategies applied to pneumatic actuators along with the modeling, controlling and simulation techniques developed for different applications of pneumatic actuators are reviewed. The review concentrates also on the analysis, investigation, performance, practical constraints, nonlinearities, uncertainties and the new applications of the pneumatic actuators.

Keyword: Pneumatic actuators; Modeling; Nonlinear systems; Uncertain systems